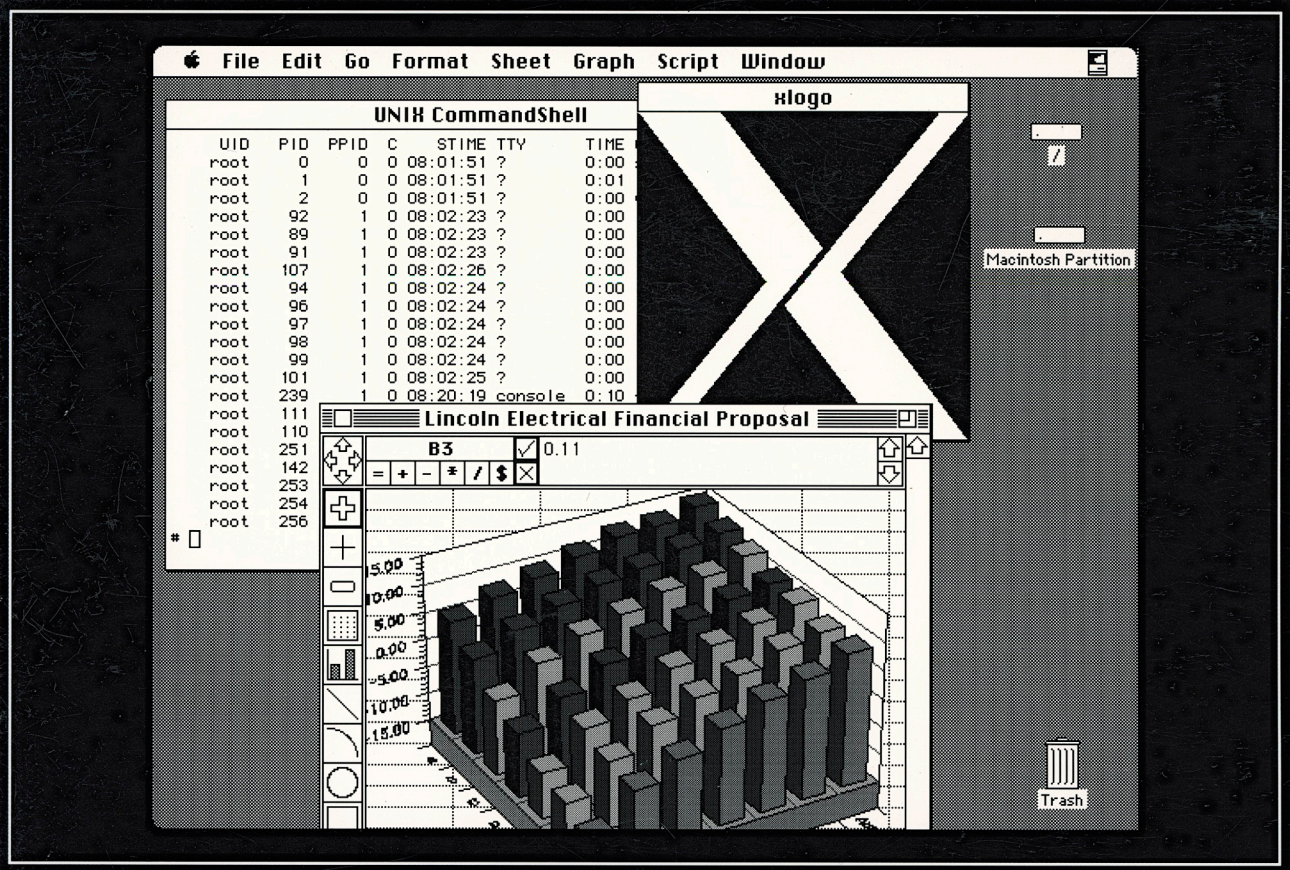
Everything you need to know to sell Macintosh computers with A/UX 2.0.



Product Orientation for Salespeople

Contents.

Introduction: A/UX Version 2.0 2

Key selling points 3

Background information about UNIX 4

A closer look at A/UX 2.0 6

Who are your customers? 10

Competition: What's the A/UX advantage? 11

Tips for selling Macintosh with A/UX 16

Answers to questions you and your customers might have 17

The A/UX product line 18

For more information 25

Glossary 26

Introduction: A/UX Version 2.0.

The Apple® A/UX® operating system Version 2.0 is the only product on the market that combines the features of an industry-standard UNIX operating system with the Macintosh® computer's ease of use and general productivity applications. A/UX 2.0 is the solution for customers who require UNIX and want the advantages of Macintosh.

A/UX Version 2.0 lets your customers open multiple windows while running their favorite Macintosh, UNIX, and even X Window System client applications—all on the Macintosh desktop. With A/UX, users are more productive because there's no need to switch from one computer to another to run programs from different environments. All the environments are integrated on a single machine.

Version 2.0 is an update to A/UX Version 1.1.1, and includes new features that make A/UX more powerful and easier to use. A/UX 2.0 "hides" the complexity of UNIX from the user by bringing the Macintosh desktop to the UNIX environment. With A/UX 2.0, users have the advantages of UNIX standards compliance as well as the familiar windows and point-and-click access for which the Macintosh is famous. In short, A/UX 2.0 delivers everything your customers require from UNIX and everything they love about the Macintosh.

Why is Apple providing a UNIX alternative? Because the UNIX-based personal computer market provides an incremental growth opportunity for Apple and its resellers. By 1993, UNIX-based personal computers are projected to constitute a $9.5 billion market, with a compound annual growth rate of 30 percent.* A/UX 2.0 is uniquely capable of meeting the needs of organizations—including large corporations, the U.S. federal government, and major universities—that require UNIX in addition to general-purpose productivity applications. A/UX 2.0 is uniquely positioned to give customers a standard UNIX environment and the Macintosh advantage.

*Source: International Data Corporation.

Key selling points.

A/UX 2.0 extends the benefits of Macintosh to those who require UNIX.

▶ Complies with UNIX standards.

A/UX is UNIX.

- ▶ Based on AT&T's UNIX® System V, Release 2, Version 2, with BSD Version 4.3 extensions; SVID compliant.
- ▶ Complies with IEEE POSIX 1003.1 and 1988 FUS.
- ▶ Complies with Federal Information Processing Standard (FIPS) #151.

▶ Delivers the Macintosh advantage.

Powerful technology that's easy to use.

- ▶ A/UX runs Macintosh applications that feature the consistent, graphics-based Macintosh user interface, making software easy to learn and use.
- ▶ Users see the Macintosh desktop and have point-and-click access.
- ▶ A/UX provides Macintosh-style startup and shutdown.
- ▶ Administration has been simplified with features such as autoconfiguration, autorecovery, and administrative scripts.
- ▶ Setup is simple: A bundled A/UX system can be installed in 15 minutes.
- ▶ Commando, a UNIX command builder, lets users build commands through menu selections, eliminating the need to memorize UNIX commands.

Consistent applications that work together.

- ▶ Many Macintosh applications run on A/UX with no changes, and behave in exactly the same manner as they do on the Macintosh operating system.

Integration of environments.

- ▶ Applications from several environments can run on the Macintosh desktop with MultiFinder® support, increasing the user's productivity. Environments supported include:
  —Macintosh applications
  —AT&T System V and BSD 4.3 UNIX applications
  —X Window System for A/UX (sold separately)
  —MS-DOS applications (through third-party emulation tools)

A broad line of hardware products that run the same software.

- ▶ A/UX 2.0 is available on all models of the Macintosh II product line as well as the Macintosh SE/30, offering customers a wide range of price and performance choices.

Networking capabilities that extend the user's reach.

- ▶ Supports industry-standard connectivity products for easy integration into networks of UNIX systems:
  —TCP/IP over Ethernet
  —TCP/IP over serial lines or modems (SL/IP)
  —Standard UNIX serial connectivity via *uucp*
- ▶ Supports UNIX networking capabilities, letting users communicate with other systems across the network. For example, users can share files, remotely access other systems, build large networks, and run distributed X Window System applications. These UNIX communications standards are supported:
  —NFS (Network File System), Version 3.2
  —Berkeley Networking Services
  —Network Information Service
  —X Window System (add-on product)
- ▶ Supports the AppleTalk® network system for printing and AppleShare® file access for easy integration into Apple networks. LocalTalk® network support is built into each A/UX system.
- ▶ Supports EtherTalk® networks over Ethernet.

Background information about UNIX.

UNIX was designed for portability.

UNIX is now a standard computing environment in many large institutions—including the U.S. federal government, universities, and Fortune 500 corporations. In 1993, almost one out of four desktop personal computers will be UNIX-based, according to International Data Corporation (IDC).

The primary feature driving the growth in the UNIX-based personal computer market is the portability of UNIX. UNIX applications can be used by many types of computers, protecting the customer's investment. UNIX also provides virtual memory and multitasking capabilities, allowing users to run several applications simultaneously.

A word about standards

Compliance with industry standards—from the operating system to networking protocols—is critical to UNIX customers. By purchasing products that conform to standards, customers can lower the risks of making computer investments—customers retain the ability to integrate new hardware and software with their older systems.

AT&T's UNIX System V is the original UNIX and it is still the most popular version of UNIX on the market. This means that a large number of System V–compliant applications are already supported by A/UX, and other UNIX applications can easily be ported to A/UX.

Several other versions of UNIX exist. The best known is the Berkeley Software Distribution (BSD). BSD is similar in functionality to System V, but contains additional UNIX utilities and networking capabilities. A/UX and other versions of UNIX now include "BSD extensions," the best of the BSD enhancements.

Several independent standards agencies have published their own specifications for UNIX. Among these are IEEE (POSIX 1003.1) and the U.S. government's FIPS #151. Other groups have recently formed to attempt to influence future UNIX standards. These include the Open Software Foundation (OSF), X/OPEN, and UNIX International (UI). Apple is consistently monitoring the standards required by customers.

UNIX market dynamics

Today, the fastest-growing segment of the UNIX market is UNIX-based personal computer systems. This segment is expected to grow to more than $9.5 billion by 1993, according to IDC.

The UNIX-based personal computer segment is growing rapidly for several reasons. The attraction of UNIX and its capabilities is clearly part of it, but equally important is growing customer dissatisfaction with the limited functionality of MS-DOS systems.

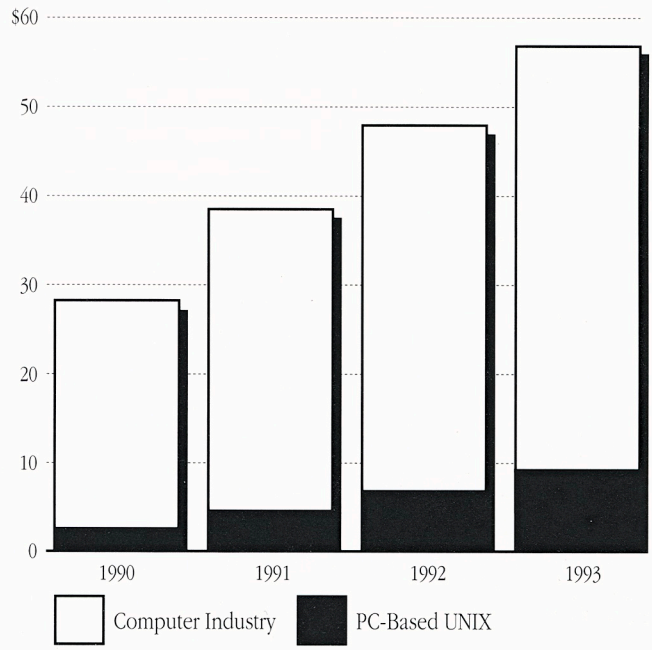
DOS-based personal computers continue to lag in terms of performance and ease of use in personal productivity applications. This, combined with the confusion over OS/2, has caused many MIS managers to reevaluate their personal computer operating system strategies.

While DOS personal computer makers attempt to increase the functionality and user-friendliness of their systems, workstation vendors are trying to make the UNIX environment easy to use and provide personal productivity applications. Major workstation vendors are focusing much of

their development efforts on "hiding" UNIX from the user with more graphical, intuitive user interfaces. The Macintosh and A/UX 2.0 have already accomplished this. To compete with lower-cost personal computers from Apple and DOS vendors, UNIX system vendors are also offering lower-performance, lower-cost machines.

In other words, both DOS and UNIX system vendors are now trying to do what Apple already does best: provide powerful, easy-to-use technology that can take advantage of personal productivity tools. Only A/UX can integrate Macintosh productivity applications, UNIX programs, and X Window System client applications on the familiar Macintosh desktop.

PC-Based UNIX Revenue



Units in Billions

Source: IDC

Revenue growth for UNIX-based personal computer systems is dramatic, presenting an opportunity for Apple and Apple resellers.

A closer look at A/UX 2.0.

More details about the background, key features, and benefits of A/UX.

Unique capabilities of A/UX

There is no product on the market that can be compared directly with A/UX. Other machines allow customers to run UNIX and X Window System client applications; some other computers even allow users to run DOS general productivity applications in an emulator window. What no competitor offers, however, is the level of integration and ease of use available with A/UX 2.0. A/UX is the first UNIX product that does not require users to have an in-depth knowledge of UNIX to use the system.

Availability is another unique feature of A/UX. Generally, when customers purchase UNIX systems from other vendors, the system must be ordered directly from the vendor. Applications are usually expensive and available only through mail-order companies. With A/UX, customers can purchase the entire package through their local Apple dealer. The customer can choose from a wide array of hardware options and personal productivity applications—all at the dealership. Moreover, once the customer buys an A/UX system, the computer can be fully configured and installed in less than 15 minutes.

A/UX is also different from other UNIX systems in its look and feel. Other UNIX systems offer graphical user interfaces, but no one else delivers the benefits of the Macintosh interface and the Macintosh Toolbox. Apple has invested years of development effort to ensure that its systems provide the functionality users want.

With A/UX, users not only can run Macintosh, UNIX, and X Window System applications, but can run these applications simultaneously. A UNIX application can run in one window, an X Window System application can run in another window, and a Macintosh application can run in a third window—and all these applications can be visible on the same screen at the same time. Users can cut and paste, drag, and open and close any of these applications just as they would when using the Macintosh operating system. No other UNIX system supports this level of integration.

Apple recognizes that not everyone who needs UNIX is a UNIX expert. Many computer users require UNIX but also need personal productivity applications, high-quality support, and a system that is easy to set up, use, and maintain. With its Macintosh-style interface, integration of major environments, and ability to run off-the-shelf Macintosh applications, A/UX is uniquely positioned to meet the needs of a large segment of UNIX customers.

What's new about A/UX Version 2.0

A/UX 2.0 features many exciting innovations that make A/UX more powerful and easier to use. Here is a summary of the most important new features.

Feature	Benefit
▶ **Macintosh look and feel**	▶ Gives users the benefits of the intuitive, graphics-based Macintosh desktop with point-and-click access to all files.
▶ **MultiFinder operating environment**	▶ Lets users open multiple applications concurrently. ▶ Makes it easy to integrate information from multiple applications by cutting and pasting between them. ▶ Allows users to continue working with applications while performing tasks in the background, such as print spooling or downloading remote files.
▶ **Macintosh-style startup and shutdown**	▶ Enables customers to start up and shut down easily, without needing to know the technical details of the environment.
▶ **Support for 32-bit Color QuickDraw™**	▶ Gives users access to the full range of Macintosh graphics capabilities, including true color and full gray scale.
▶ **Support for multiple types of applications within the Macintosh desktop environment, including:** **—UNIX System V/BSD 4.3 applications** **—Macintosh applications** **—X Window System applications (add-on)** **—Hybrid applications (UNIX applications that use the Macintosh Toolbox)**	▶ Lets users run multiple UNIX, Macintosh, and X Window System applications simultaneously from the Macintosh desktop.

A closer look.

(continued)

Feature	Benefit
▶ **UNIX integration:**	
—UNIX shell windows on the Macintosh desktop	▶ Provides traditional UNIX shells (C, Korn, or Bourne) from within the Macintosh desktop.
—Mouse-driven text editor	▶ Lets you edit files using a Macintosh mouse-driven editor; eliminates the need to learn a text editor such as *vi*.
—Macintosh and UNIX file systems	▶ Allows users to access UNIX, BSD, and Macintosh file systems in the same manner, with point-and-click access.
—UNIX command builder (Commando)	▶ Lets users, even those who use UNIX only occasionally or who are new to UNIX, build UNIX commands from menu selections.
—Cut-and-paste text editing	▶ Allows users to cut and paste text between UNIX, Macintosh, and X Window System applications.
—Printer and AppleShare file server selection through the Chooser	▶ Makes it easy to select a printer or AppleShare file server using the Chooser, a standard Macintosh desk accessory.
▶ **Enhanced compliance with additional UNIX standards, including:** **—IEEE POSIX 1003.1 and FUS** **—Berkeley File System** **—NFS Version 3.2 enhancements** **—Shared libraries** **—X Window System support**	▶ A/UX complies with all relevant UNIX standards (including AT&T SVID, IEEE POSIX 1003.1, and FIPS #151), letting users port existing applications to A/UX with minimal effort.
▶ **Built-in Macintosh networking capabilities, including:** **—AppleTalk printing support** **—AppleShare file access**	▶ Allows Macintosh applications to share printers and use AppleShare files over an AppleTalk network system, using on-board LocalTalk or EtherTalk (sharing the same Ethernet board with TCP/IP protocols). AppleTalk for A/UX is included in A/UX 2.0.
▶ **Additional support:**	
—Macintosh IIfx computer	▶ Allows A/UX 2.0 to run on all Macintosh II systems, as well as the Macintosh SE/30.
—Serial printing	▶ Lets users print documents on a serially connected LaserWriter® or ImageWriter® printer.
—Slot, Serial, and Sound Managers	▶ Allows use of Macintosh applications that access the Macintosh Toolbox Slot, Serial, and Sound Manager software.

Feature	Benefit
—Sound	► Supports applications that take advantage of Macintosh sound capabilities.
—MacTCP® software	► Allows use of Macintosh applications that access MacTCP for TCP/IP connectivity.
—Macintosh Communications Toolbox	► Lets applications "talk" to the Toolbox without requiring the application to designate a communications protocol.
► **International support**	► The A/UX operating system accepts 8-bit characters and alternative character sets, so Macintosh and A/UX developers can create A/UX applications in many languages. Danish, Dutch, Finnish, Flemish, French, German, Italian, Norwegian, Portuguese, Spanish, and Swedish are supported.
► **Macintosh debugger**	► Allows developers to easily debug their Macintosh applications.

Applications that run on A/UX

A/UX 2.0 supports several types of applications, including Macintosh, UNIX, and X Window System applications.

Macintosh applications

Many popular Macintosh applications run under A/UX right out of the box, so customers have access to the productivity applications they require. To run under A/UX, Macintosh applications must be "32-bit clean." This means they must conform to the guidelines for the Macintosh 32-bit environment, as set forth in *Inside Macintosh*. The Macintosh operating system, like A/UX, will soon require all applications to be 32-bit clean for virtual memory, assuring your A/UX customers an even greater availability of Macintosh applications in the future.

UNIX applications

Because A/UX is built on the standard AT&T UNIX System V platform and offers BSD extensions, a large number of UNIX applications can run on A/UX with minimal changes. Moreover, A/UX gives developers access to the Macintosh Toolbox, so they can create applications that look and feel like Macintosh applications—with pull-down menus, scroll bars, and dialog boxes.

X Window System applications

By adding the X Window System for A/UX, customers can run standard X Window System applications on their A/UX systems. In the A/UX environment, the Macintosh can act as the X Window System server, as a client, or both.

Who are your customers?

The A/UX customer requires UNIX and wants ease of use and personal productivity applications.

A/UX prospects are customers who require a standard UNIX operating system, and who also want to use personal productivity applications. The typical customer who requires UNIX on his or her desktop tends to use a computer approximately 70 percent of the time for productivity applications and 30 percent of the time for required UNIX applications. The Macintosh platform with A/UX enables these professionals to use one computer for both types of work.

A/UX and the Macintosh operating system are complementary. If the customer doesn't need UNIX, the Macintosh operating system is the best solution. If the customer requires UNIX, A/UX is ideal.

The table below summarizes the primary A/UX customer groups, their particular requirements, and the key advantages of A/UX.

Customer	Why the Customer Wants UNIX	How A/UX Delivers
Federal government	► Standards compliance: —AT&T SVID —FIPS #151 —IEEE POSIX 1003.1	► A/UX complies with relevant published industry standards. A/UX is the only solution for government employees who want to run Macintosh applications and who require UNIX.
	► Broad range of applications	► No other platform can run Macintosh, UNIX, and X Window System applications.
	► Security features	► Security features are available for customers who need them.
Large corporations	► Ability to run personal productivity applications and UNIX-specific technical applications	► Only A/UX delivers Macintosh productivity applications and a full-featured, standard UNIX environment.
	► Software development tools that are simple yet powerful	► A/UX gives customers access to the Macintosh Toolbox as well as to UNIX development tools.
	► Ability to easily port applications from one platform to another	► A/UX fully complies with UNIX standards, for application portability and reduced development costs.
	► Easy communication on a heterogeneous network	► A/UX supports many industry-standard communications protocols: —TCP/IP —SL/IP —AppleTalk —Ethernet ► A/UX also supports many high-level communications capabilities: —NFS 3.2 —Network Information Service —Berkeley Networking Service —X Window System
Higher education institutions	► Lower-cost UNIX systems with better personal productivity applications	► With the standard UNIX base of A/UX, students can learn about UNIX while using Macintosh productivity applications for their classwork.
	► High-quality development tools for scientific and research computing	► A/UX includes UNIX editors, languages, compilers, and debugging tools.
	► High-level networking capabilities for heterogeneous environments	► A/UX easily integrates with a UNIX-based campus network through industry-standard networking and communications media.
	► Access to high-end UNIX-based software solutions such as NASTRAN, PATRAN, SPICE, MAGIC, and IDEAS	► A/UX provides instructors and students with access to these tools and allows them to work closely with the greatest breadth of courseware and personal productivity applications available.

Competition: What's the A/UX advantage?

A/UX 2.0 is the only product in the industry that brings the Macintosh advantage to the UNIX world.

Macintosh with A/UX is neither a UNIX workstation nor a traditional personal computer, yet it is compared to both. Why? Because A/UX systems run UNIX applications and utilities, which are usually associated with workstations; yet A/UX systems also run general productivity applications, which are usually associated with personal computers. While workstation and personal computer manufacturers try to add Macintosh-like features to their products, Macintosh with A/UX already offers the functionality that users are looking for.

As a total solution for customers who want general productivity applications and require a standard UNIX base, Macintosh with A/UX offers the following competitive advantages when compared with any other system.

Overall Competitive Advantages

- Intuitive, consistent, easy-to-use Macintosh interface
- Integrated Macintosh, UNIX, and X Window System environments
- Complete system available through Apple resellers
- Readily available, inexpensive productivity applications

The tables on the next four pages summarize the key competitive offerings with which A/UX will be compared, and point out the A/UX advantage over each of them.

Competition.

(continued)

Sun Microsystems

Background: Sun has been the industry forerunner in marketing UNIX and the Open Systems philosophy. Sun currently offers three product lines: the SPARCsystem family, based on RISC processors; the Sun-3 line, built around Motorola CPUs; and the Sun386i family, featuring Intel processors and integrated UNIX and MS-DOS environments. Sun is clearly focusing development efforts on the SPARC line; the future of the Motorola and Intel families seems uncertain. Sun is also attempting to make the Sun operating system easier to use with its OPEN LOOK graphical user interface; however, there are few OPEN LOOK applications on the market today, and it will be difficult for Sun developers to match the consistency and ease of use of Macintosh productivity applications.

Product	Summary	Weaknesses	A/UX Advantage
SunOS	SunOS is an SVID-compliant version of UNIX. Sun now offers OPEN LOOK as a graphical front end to SunOS, and supports the X Window System via a merged window system product called X11/NeWS.	► Few OPEN LOOK applications exist; limited industry acceptance ► Little consistency between SunOS applications	A/UX not only is based on System V, but also incorporates all BSD standards demanded by customers. With A/UX, customers can take advantage of consistent, intuitive Macintosh applications, as well as UNIX, X Window System, and MS-DOS applications.
SPARCsystem line	SPARCsystems feature fast RISC processors, accelerated graphics, and sophisticated development and networking tools.	► Few productivity applications have been written for SPARC ► Limited expansion options	A/UX systems run more and better productivity applications as well as UNIX applications, provide access to Macintosh and UNIX development tools, and are easily expandable.
Sun-3 family	Sun's Motorola-based products are UNIX workstation price/performance leaders, and offer the industry's largest selection of UNIX applications.	► Sun's ongoing commitment to the Motorola line is uncertain ► Few personal productivity applications available	Macintosh with A/UX offers integrated Macintosh, UNIX, and X Window System environments for a larger selection of personal productivity applications.
Sun386i line	The Sun386i integrates UNIX and MS-DOS environments, allowing users to run UNIX and DOS applications simultaneously.	► Slow DOS performance ► DOS application compatibility problems ► Uncertain future	Macintosh with A/UX offers integrated environments with better productivity applications; Apple is clearly committed to its A/UX product line.

IBM

Background: IBM developed its own version of UNIX, called AIX, more than three years ago, and introduced it with the IBM RT. Although the RT and AIX were not well received initially, IBM is now gearing up for a new push into the UNIX market. AIX runs on both the RISC-based RT and the Intel-based PS/2 line, but it has shortcomings. AIX lacks a single, consistent graphical user interface. Though IBM has the option of supporting Motif, NextStep, or Presentation Manager, the choice makes it difficult for customers to plan, and impossible for developers to ensure consistency and compatibility between applications. Also, because AIX runs on a wide range of architectures, it is not optimized for a particular platform, as is A/UX on the Macintosh.

Product	Summary	Weaknesses	A/UX Advantage
AIX operating system	AIX is based on AT&T's System V, and will support the Motif, NextStep, and Presentation Manager graphical user interfaces in the future.	► Few productivity applications exist ► Lack of consistency between applications ► No commitment to a consistent graphical user interface ► Unclear which UNIX standards AIX will incorporate in the future	A/UX brings much of the Macintosh ease of use to UNIX, while allowing customers to use consistent, intuitive Macintosh applications.
IBM RT	Incorporates a fast RISC-based processor, can emulate MS-DOS and OS/2, and can run other IBM UNIX applications with minor modifications.	► Limited industry acceptance means few ported applications exist ► Poor price/performance perception	A/UX allows customers to take full advantage of the breadth of Macintosh applications as well as UNIX and X Window System applications; Apple is firmly committed to A/UX.
IBM PS/2 line	The same AIX operating system that runs on the RT also runs on the PS/2; PS/2 models can also run MS-DOS applications (add-on).	► AIX cannot be optimized for the desktop PS/2 because it is designed to run on a wide variety of IBM computers	A/UX is designed around the user, not the processor. A/UX offers more easy-to-use personal productivity applications, and integrates the Macintosh environment with standard UNIX and X Window System environments.

Competition.

(continued)

NeXT

Background: NeXT, founded by Steve Jobs, has built another alternative directed at the UNIX desktop market. Originally targeted at universities, the NeXT workstation is now sold on the retail level through Businessland.

NeXT's UNIX operating system, called Mach, has many of the characteristics of BSD Version 4.3. Although Mach offers some functionality that UNIX users have been looking for, it falls short in what UNIX customers require: standards compliance. Mach does not comply with AT&T SVID, IEEE POSIX 1003.1, or FIPS #151 specifications, and lacks the ability to run X Window System applications. Few applications are available on the NeXT platform at this time.

Product	Summary	Weaknesses	A/UX Advantage
NeXT workstation	High-quality, three-dimensional effects and icons, easy-to-use file browser, object-oriented development environment.	► Nonstandard UNIX ► Few applications available ► Slow graphics architecture ► No X Window System support ► No DOS or Macintosh operating system support ► No color	A/UX lets customers run Macintosh, industry-standard UNIX, and X Window System applications; offers thousands of personal productivity applications; and supports both Macintosh and UNIX development tools.

Hewlett-Packard

Background: Hewlett-Packard's recent acquisition of Apollo Computer makes HP the largest workstation vendor in the world. Hewlett-Packard has initiated an aggressive marketing push touting the company's ability to provide integrated solutions—from personal computers to multiuser systems. Hewlett-Packard systems run a version of UNIX called HP/UX, while Apollo's systems run Domain.

Product	Summary	Weaknesses	A/UX Advantage
HP/UX	AT&T SVID-compliant implementation with BSD extensions; features Motif graphical user interface (soon will support NewWave graphical user interface).	► No X Window System support ► Few applications available ► Limited industry acceptance of NewWave ► No compatibility between HP/UX and Domain ► Unclear which operating system is the preferred HP operating system	A/UX integrates Macintosh, UNIX, and X Window System environments on the familiar, intuitive Macintosh desktop, providing a wide array of software choices and development tools.

Digital Equipment Corporation

Background: Digital ships about $1 billion of UNIX-based systems annually. Based on ULTRIX™, Digital's version of UNIX, the DECstation™ 2100 and DECstation 3100 models are Digital's latest UNIX offerings, and are aimed at shoring up the company's position in the UNIX market. The DECstation 2100 competes most directly with Macintosh with A/UX.

Product	Summary	Weaknesses	A/UX Advantage
ULTRIX	ULTRIX is an adaptation of AT&T's System V, with BSD 4.2 extensions, runs on all DEC™ UNIX products, and supports the X Window System.	► Unclear which UNIX standards ULTRIX will conform to in the future ► No support for Macintosh applications ► Few personal productivity applications available ► No desktop metaphor for iconic representation of files	A/UX integrates Macintosh, UNIX, and X Window System environments, providing a wide selection of applications for customers. Apple is committed to A/UX and will assure continued conformance with AT&T System V specifications.
DECstation 2100	Features a RISC-based processor and on-board Ethernet for easy connectivity; supports X Window System and DECwindows™	► No compatibility between ULTRIX and VMS™, the traditional DEC operating system ► Few UNIX applications run on the DECstation 2100 ► No DOS or Macintosh operating system support	Macintosh with A/UX lets users run Macintosh personal productivity applications and UNIX applications, and provides access to both Macintosh and UNIX development tools.

Santa Cruz Operation (SCO)

Background: The Santa Cruz Operation has traditionally focused on barebones multiuser UNIX systems for high-end personal computers, but SCO is now rushing to present a product that offers UNIX for the desktop with a window-based interface. OpenDesktop is an integration of SCO and third-party technologies, including SCO UNIX System V/386, SQL database management, TCP/IP, NFS, X Window System, MS-DOS under UNIX, and OSF's Motif.

Product	Summary	Weaknesses	A/UX Advantage
OpenDesktop (under XENIX/UNIX operating system)	AT&T SVID-compliant SCO XENIX runs on Intel hardware platforms and provides a full range of software development tools. SCO has had success in the past in vertical VAR markets.	► Development tools are add-ons ► Few general productivity applications available ► DOS compatibility and performance is weak under XENIX ► Low level of integration among the hardware, operating system, and interface.	A/UX provides Macintosh and UNIX applications without sacrificing system performance, and allows customers to take advantage of the wide range of consistent, easy-to-use Macintosh personal productivity applications. A/UX and the Macintosh provide a high level of integration among critical system components, thereby delivering a customer-focused tool.

Tips for selling Macintosh with A/UX.

▸ **Sell the Macintosh advantage to those who require UNIX.**	▸ Customers who are interested in A/UX already know they need UNIX. Show them that A/UX meets their UNIX needs, and sell them Macintosh.
▸ **Sell user productivity, not "speeds and feeds."**	▸ A/UX is the only product on the market that lets users run UNIX, Macintosh, and X Window System applications. For personal productivity, no UNIX system beats A/UX.
▸ **Sell Technical Answerline support every time you sell A/UX.**	▸ Apple's Technical Answerline is priced at only $1,195 for an unlimited number of toll-free calls for 12 months.
▸ **When to walk away:**	▸ The customer primarily runs UNIX and/or X Window System applications. ▸ The customer wants a multiuser UNIX system. ▸ The customer wants a single-function computer.

Answers to questions you and your customers might have.

▶ *Will A/UX replace the Macintosh operating system?*	No. The Macintosh operating system is our primary operating system, and that is not changing. A/UX is complementary to the Macintosh operating system; A/UX allows UNIX customers to enjoy the Macintosh experience.
▶ *Why hasn't Apple joined the major UNIX consortia such as UI, OSF, and X/OPEN?*	Apple is committed to providing customer-demanded standards as they emerge. A/UX and X Window System are just two examples of this commitment. Apple constantly monitors the activities of UNIX groups to determine which standards to support in the future.
▶ *Which Macintosh applications run on A/UX with no changes?*	Applications that conform to the standards defined in *Inside Macintosh* for 32-bit environments can be used out of the box. Many major Macintosh applications meet these standards, including Microsoft Word 4.0, Wingz, MacWrite II, HyperCard®, and more.
▶ *Which UNIX applications run on A/UX and X Window System?*	All AT&T SVID, IEEE POSIX 1003.1, and FIPS #151 compliant UNIX programs can run on A/UX with a recompile. Many BSD 4.3 and X Window System applications can also be ported to A/UX easily.
▶ *What is the future direction of A/UX?*	Apple's goals for A/UX are to track Macintosh operating system developments, provide greater integration in multivendor environments, continue to conform to new standards as they emerge, and continue to make the technology more accessible and powerful.

The A/UX product line.

Several buying options are available to suit different customer requirements.

System Requirements

To use the A/UX 2.0 operating system, your customer will need one of the following personal computers:

- ►Macintosh SE/30
- ►Macintosh II with an Apple Paged Memory Management Unit (PMMU)
- ►Macintosh IIcx
- ►Macintosh IIx
- ►Macintosh IIci
- ►Macintosh IIfx

Your customer will also need:

- ►A minimum of 4 megabytes of RAM
- ►An Apple hard disk (minimum 80 megabytes) or the equivalent
- ►An Apple monitor (or the equivalent) that is compatible with A/UX 2.0
- ►For Ethernet compatibility, the Apple EtherTalk NB Card or the equivalent

Optional Equipment

- ►Additional memory
- ►An AppleCD SC® drive

Ordering Information

		Your customer will receive:
► **Macintosh IIfx A/UX System**	Order No. B0266LL/A	Macintosh IIfx personal computer with A/UX 2.0 installed on an internal 80-megabyte hard disk; 4 megabytes of RAM
► **Macintosh IIci A/UX System**	Order No. B0264LL/A	Macintosh IIci personal computer with A/UX 2.0 installed on an internal 80-megabyte hard disk; 4 megabytes of RAM
► **Macintosh IIcx A/UX System**	Order No. B0263LL/A	Macintosh IIcx personal computer with A/UX 2.0 installed on an internal 80-megabyte hard disk; 4 megabytes of RAM
► **A/UX 2.0 External 80MB Hard Disk**	Order No. B0267LL/A	A/UX 2.0 installed on an Apple external 80-megabyte hard disk

▸ **A/UX 2.0 CD-ROM**	Order No. B0270LL/A	A/UX 2.0 installed on a single compact disc, with the floppy disks required to install A/UX onto a hard disk
▸ **A/UX 2.0 Floppy Disk Product**	Order No. B0269LL/A	File index disks along with 800K floppy disks containing A/UX 2.0, as well as the floppy disks required to install A/UX onto a hard disk
▸ **A/UX 2.0 Tape Product**	Order No. B0268LL/A	A/UX 2.0 installed on a 40-megabyte tape cartridge (QIC-100 format); includes the floppy disks required to install A/UX onto a hard disk

Each of the above products includes a 16-user right-to-use license for one system, a limited warranty statement, and an A/UX 2.0 accessory kit, which contains the following:

- Manual: *A/UX Essentials*
- Manual: *Setting Up Accounts and Peripherals for A/UX*
- Manual: *A/UX Installation Guide*
- Manual: *Road Map to A/UX Documentation*
- Five floppy disks that contain utilities

The A/UX product line.

(continued)

Manual Sets

▸ **A/UX Manuals—User Kit**	Order No. M0429LL/A	A set of manuals for users who want to use A/UX with traditional UNIX commands
▸ **A/UX Manuals—Administrator Kit**	Order No. M0431LL/A	A set of manuals for system administrators of A/UX systems and workgroups
▸ **A/UX Manual—Programmer Kit**	Order No. M0430LL/A	A set of manuals for users who are developing applications for A/UX
▸ **A/UX Manual Bundle**	Order No. B0274LL/A	Includes one of each manual set listed above

Update Products

▸ **A/UX Update Tape Product**	Order No. B0271LL/A	A 40-megabyte tape cartridge (QIC-100 format) updating any previous version of A/UX to Version 2.0
▸ **A/UX Update CD-ROM Product**	Order No. B0273LL/A	A single compact disc updating any previous version of A/UX to Version 2.0
▸ **A/UX Update Floppy Disk Product**	Order No. B0272LL/A	Floppy disks updating any previous version of A/UX to Version 2.0
▸ **A/UX Update Manual Kit**	Order No. B0275LL/A	A set of manuals updating the manuals of any previous version of A/UX to those of Version 2.0

Licensing Products

▸ **A/UX Right to Update**	Order No. M0741LL/A	The right to update one system to A/UX Version 2.0 from any system with any previous version of A/UX. (Available only to customers who purchase directly from Apple Computer, Inc., and who have signed the "right to copy" agreement.)
▸ **A/UX Right to Copy**	Order No. M0740LL/A	The right to copy A/UX Version 2.0 to one system. (Available only to customers who purchase directly from Apple Computer, Inc., and who have signed the "right to copy" agreement.)

Related Products and Services

▸ **Apple 68851 Paged Memory Management Unit (PMMU)**	Order No. M0221
▸ **Apple EtherTalk NB Card**	Order No. M0405
▸ **AppleCD SC Drive**	Order No. M2700/B
▸ **Apple Hard Disk 80SC**	Order No. M2688/A
▸ **X Window System for A/UX**	Order No. M0411LL/A

The A/UX product line.

(continued)

- ***Inside Macintosh***

  Available from APDA
  (see following information)

- **A/UX Technical Answerline (1-800-522-4888)**

  Order No. M0594LL/A

  The A/UX Technical Answerline is a toll-free service that gives customers immediate access to Apple's A/UX technical support specialists. For an annual fee, subscribers receive:

  - 12 months of telephone access to Apple's Direct Response Center℠
  - An unlimited number of toll-free calls by two authorized contacts
  - Bug reporting service through the Direct Response Center
  - Quarterly usage reports
  - 12 hours of telephone access per day, excluding weekends and holidays

  The Technical Answerline replaces the A/UX Hotline 5-hour and 15-hour service, and provides subscribers with assistance for A/UX-related products such as the X Window System.

- **APDA**

  The Apple Programmers and Developers Association (APDA™) provides a wide range of development products and documentation—from Apple and other suppliers—for programmers and developers who work with Apple equipment. For information about APDA, contact:

  APDA
  Apple Computer, Inc.
  20525 Mariani Avenue, M/S 33G
  Cupertino, CA 95014
  1-800-282-APDA (1-800-282-2732)
  Fax: (408) 562-3971
  Telex: 171-576
  AppleLink®: APDA

- **A/UX Software Update Service**

  A/UX Software Update Service subscribers receive all A/UX software releases issued within a one-year period, including documentation about enhancements, instructions about updating the system, and a summary of software fixes. The A/UX Software Update Service is available on tape, floppy disks, or CD.

- **A/UX Manual Update Service**

  Customers receive revised manuals or loose-leaf updates documenting all revisions, updates, and enhancements contained in each new software release. As with the Software Update Service, this service is renewable on an annual basis.

The A/UX product line.

(continued)

A/UX Compatibility

Component	*Previously Supported*	*Added in A/UX 2.0*
▸ **CPU**	▸Macintosh SE/30 ▸Macintosh II with PMMU ▸Macintosh IIcx ▸Macintosh IIx ▸Macintosh IIci	▸ Macintosh IIfx
▸ **Hard Disk Drive**	▸20MB, 40MB, 80MB, 160MB	
▸ **Floppy Disk Drive**	▸ 400K, 800K	▸ 1.44MB
▸ **CD-ROM**	▸ UNIX file format	
▸ **Printers**	▸LaserWriter IInt, IIntx ▸LaserWriter Plus ▸ImageWriter II, LQ	
▸ **Monitors**	▸All Macintosh monitors ▸Large-format color monitors from third-party vendors	▸ Macintosh Display Card 4•8 ▸ Macintosh Display Card 8•24
▸ **Keyboards**	▸All domestic Macintosh keyboards (function keys not supported)	▸ Nonextended European keyboards (function keys not supported)
▸ **Networking**	▸TCP/IP over Ethernet ▸SL/IP over serial lines ▸LocalTalk via third-party boards	▸ On-board LocalTalk ▸ EtherTalk 2.0

For more information.

You've got help when you're ready to hit the UNIX marketplace.

▸ **AppleLink—A/UX Icon**	▸ For the latest A/UX product, marketing, and sales information and materials
▸ **Sales Tools**	▸ A/UX PowerPoint presentation ▸ A/UX 2.0 data sheet ▸ A/UX third-party information ▸ A/UX competitive information ▸ Audiocassette: "Selling A/UX with Success" ▸ A/UX Sales and Seminar Kit
▸ **Training**	▸ A/UX Concepts and Capabilities ▸ A/UX Essentials for Sales ▸ A/UX System Administration, Section I: Local Administration ▸ A/UX System Administration, Section II: Network Administration

Note: Items listed above are limited in quantity and subject to change.

Glossary.

Berkeley Networking Services	Utilities that provide TCP/IP communication.
Berkeley Software Distribution	The U.C. Berkeley version of UNIX. The most common releases are Versions 4.2 and 4.3.
Bourne shell	The command shell developed by Steven Bourne at AT&T.
C shell	The command interpreter developed by U.C. Berkeley programmers.
Directory	A collection of files and subdirectories—similar to a Macintosh file.
Federal Information Processing Standard (FIPS)	The U.S. federal government's standard for computer purchases; FIPS #151 refines the IEEE POSIX 1003.1 standard.
IEEE	Institute of Electrical and Electronics Engineers.
Inside Macintosh	Apple documents that define standards for Macintosh applications programming.
Kernel	The portion of the operating system that communicates directly with the hardware to allocate software and hardware resources.
Korn shell	A revised command interface that contains features of its two predecessors, the Bourne and C shells from AT&T and U.C. Berkeley.
Motif	The windowing system specified by the Open Software Foundation (OSF); a hybrid of Presentation Manager, Hewlett-Packard's NewWave, and DECwindows. Motif is built on the X Window System from MIT.
Multitasking	Allows the CPU to perform multiple tasks simultaneously by switching rapidly between them.
Multiuser system	Allows more than one user at a time to share the same CPU.

Network File System (NFS)	The de facto standard facility for transparent file sharing, enabling a user on one vendor's computer to access files on another vendor's computer.
Network Information Service (NIS)	A distributed network database service that makes server-based files available to workstations.
Open Software Foundation (OSF)	A consortium of companies dedicated to defining UNIX standards. Includes Apollo, Digital Equipment Corporation, Hewlett-Packard, and IBM.
Portability	Transferability from one type of computer to another.
Serial Line/Internet Protocol (SL/IP)	Provides TCP/IP protocols over serial lines—a slower but less costly alternative to Ethernet.
Shell	A specialized UNIX utility that serves as a character-oriented command-line user interface.
Source code	Software instructions written by programmers.
Transport Control Protocol/ Internet Protocol (TCP/IP)	A common communications protocol used in UNIX-based computers.
UNIX International (UI)	A consortium of companies that follow the AT&T standard for UNIX systems (previously known as the Archer Group).
Utilities	Programs that perform most operating system services, such as listing, copying, renaming, and removing files.
X/OPEN Standards Committee	A group founded in Europe that sets standards for UNIX and related tools, focusing primarily on user needs. UI and OSF are members.

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